OptoCeramic-Based High Speed Fiber Multiplexer for Multimode Fiber, Phase I

Completed Technology Project (2009 - 2009)

Project Introduction

A fiber-based fixed-array laser transmitter can be combined with a fiber-arrayed detector to create the next-generation NASA array LIDAR systems. High speed optical fiber multiplexers allow array LIDAR systems to efficiently share the same laser source. Boston Applied Technologies, Inc. (BATi) propose to develop an electrically switched, OptoCeramic

REG

based switch/multiplexer for 200micron core multimode fiber. OptoCeramic

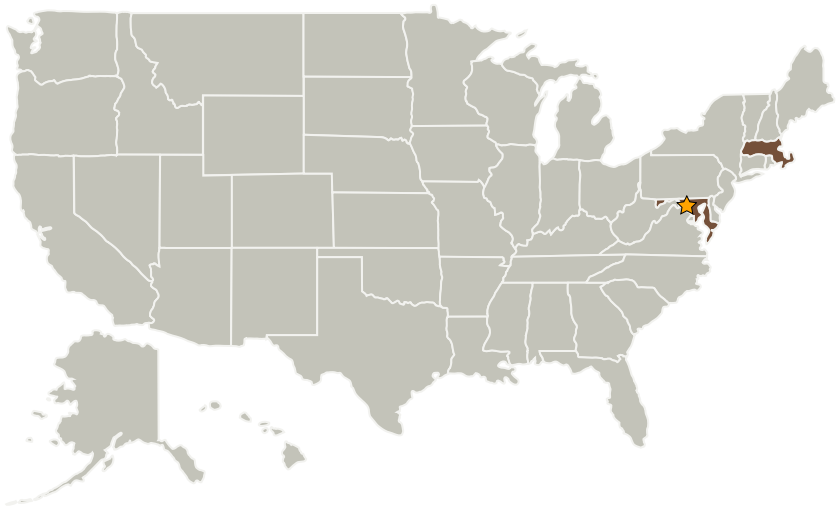
REG

is the state-of-art electro optic material with high electro-optic coefficient, fast response speed and low loss. The innovative optical designs direct the laser into one of many possible output fibers. The main features of proposed high speed fiber multiplexer include ultra-high switching speed, low insertion loss, low power consumption, high power handling capability, compact packaging and scalability.

Anticipated Benefits

In addition to the application for NASA LIDAR system, the proposed high speed optical switches will have advantages in the fiber optic communications, remote sensing and bio-medical imaging systems. In addition, the proposed switch will be useful for all-fiber optical link and high power lasers.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Boston Applied Technologies, Inc.	Supporting Organization	Industry Minority-Owned Business	Woburn, Massachusetts

Primary U.S. Work Locations	
Maryland	Massachusetts

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Project Manager:

James B Blair

Principal Investigator:

Xiaopei Chen

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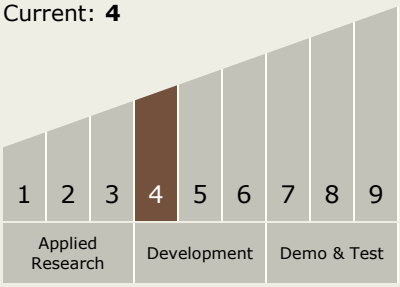
Technology Maturity (TRL)

Start: **4**
Current: **4**



Technology Areas

Primary:

- TX02 Flight Computing and Avionics
  - TX02.2 Avionics Systems and Subsystems
    - TX02.2.7 Data Reduction Hardware Systems